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E-RTO MANAGEMENT SYSTEM AND VEHICLE AUTHENTICATION USING RFID

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ABSTRACT : Now a day's many people are purchasing two wheelers, four wheelers etc. So the RTO employees having lot of work burden of making registration, License issue, transfer etc., which required lot of paper work. As a result people cannot get the things done in right time, which waste the time, energy. Similarly the vehicle owner sometimes forgets to carry the license, and forgets the insurance date at the time of enquiry. So to overcome these drawbacks we are developing an enhanced E-RTO Management System. Such like that we provide one type of environment which gives a user friendly means user can access and understand well. Administrator has the power to verify the data entered by the user, processing of data and provide appropriate solutions. Any person who have been authorized by the administrator. User is the person who gets the full benefits of this application. With the increasing importance of corruption has become a major factor to be considered as a result the number of vehicles and rapid development of population are growing in our everyday life. Now a day's population has become a major factor to be considered as a result the number vehicles are growing with increasing problems of vehicle registration management, license registration, emission, insurance etc for RTO departments and to handle user and vehicle document verification by traffic police officers.

KEYWORDS: E-RTO, RFID reader and tags, RTO, vehicle documents.

INTRODUCTION

Regional Transport Office (RTO) is an Indian government bureau which is responsible for the registration of vehicles and issue of Driver's License in India. RTO management will be having lot of work regarding registration of vehicles and issue of driver's license. Similarly the vehicle owner sometimes forgets to carry the license, and forgets the insurance at the time of enquiry. This paper proposed an approach to solve such problems that is by storing all the information related to vehicle and driver at database by RTO administrator.

E-RTO is an advanced "ERTO management System" which is design keeping in a view to make the existing registration and insurance system easier and faster. It includes the entire registration and insurance procedure starting from the initial phase of entering till the result. It is a more reliable, accurate, time saving and free from any misuse. the system provide information regarding the RTO Application and its status the TDER job such as verifying All the records of the applicant , confirming all the personal detail are furnish, submission of qualification documents, driving license , registration details, etc. are done in the most convenient way to the administrator. Also security is being provided in the most proficient way of the intermediate stages starting from the receiving of the application form to revealing the applicant number along with the expiry date of license are being dealt. Advantages of this application are- Considerably reduce the corruption in transport department. Keep the license documents safely. In case of accidents helps to identify the injured person and also helps to find out stolen vehicle effectively. To offer the drivers to be independent of vehicle related papers.

ERTO is an advanced "ERTO Management System" which is designed keeping in view to make the existing registration and insurance system easier and faster. It includes the entire registration and insurance procedure starting from the initial phase of entering till the results. It is more reliable, accurate, time saving and free from any misuse. The system provides information regarding the RTO application and its status. The tedious jobs such as verifying all the records of the applicant, confirming all the personal details are furnished, submission of qualification documents, driving license, registration details, etc., are done in the most convenient way to the administrator. Also security is being provided in the most proficient way. All the intermediate stages starting from receiving of the application form to revealing the applicant number along with the expiry date of the license are being dealt. This technology enables the traffic police to be more effective in controlling repeat violators of traffic rules. Traffic Police have the database of registration numbers as well as the history of driving license holders. When a traffic policeman would enter the details of any vehicle caught violating traffic rules, it would give the complete details of that particular vehicle including the name and address of owner and the make, model and other details of the vehicle. Not only this, the

details of the driving license holder would also be available. Therefore enhanced penalties would be imposed for repetition of violation of traffic rules.

RFID stands for Radio Frequency Identification and is a term that describes a system of identification. RFID is based on storing and remotely retrieving information or data as it consists of RFID tag, RFID reader and backend Database. RFID tags store unique identification information of objects and communicate the tags so as to allow remote retrieval of their ID. RFID technology depends on the communication between the RFID tags and RFID readers. The range of the reader is dependent upon its operational frequency. Usually the readers have their own software running on their ROM and also, communicate with other software to manipulate these unique identified tags. Basically, the application which manipulates tag deduction information for the end user, communicates with the RFID reader to get the tag information through antennas. Many researchers have addressed issues that are related to RFID reliability and capability. RFID is continuing to become popular because it increases efficiency and provides better service to stakeholders. RFID technology has been realized as a performance differentiator for a variety of commercial applications, but its capability is yet to be fully utilized.

PROPOSED SYSTEM

The proposed system is an enhanced web application for RTO Management System and also include use of RFID System for vehicle authentication. Here we added more authorities to the current system. System consist of RTO as administrator, pollution agencies, insurance agencies, police department, and vehicle owners. In this proposed system, RTO is power user. He has the power to verify the data entered by the user, processing of data and provide appropriate solutions. Administration is controlled by each RTO officer based on their credential limits. All the users need to sign up and each one should have correct username and password to access their information. The RTO will issue RFID tag for each vehicle during its verification. This RFID tag later used for vehicle authentication by authorized peoples.

i) OBJECTIVES

- To create a enhanced web application to be used in place of old system.
- To maintain and improve the skill management for the department personnel.
- To Provide easiest and efficient way for completion of RTO work.
- To ensure transparency in the day-to-day management and administration of the officials in RTO department.

ii) MODULES

- Administrator:
  Administrator is power user. He has the power to verify the data entered by the user, processing of data and provide appropriate solutions.
- Authorized user:
  Any person who have been authorized by the RTO. A authorized person like insurance agency, pollution agency, police must need an username and password to access their information from the site. The authorized people are insurance agencies, pollution agencies, and police department.
- User:
  He is the person who gets the full benefits of this application. By introducing the new system we have been organized some striking felicities:
  - Registration of vehicle through online.
  - Fancy number selection of vehicles through online.
  - Issue of information's about driving license.
  - It help's traffic police for tracing particular vehicle's.
  - Separate account for the license holders and police.
  - Provide mail alerts for users about insurance/pollution expiry.
  - Complaint registration and view its status.

- SMS:
  Send notification to inform users about expiry date of insurance and pollution.

iii) VEHICLE AUTHENTICATION USING RFID SYSTEM

Radio-frequency identification (RFID) is an automatic identification method, relying on Storing and remotely retrieving data using devices called RFID tags. The technology requires the cooperation of an RFID reader and an RFID tag. An RFID tag is an object that can be applied in to an object for the purpose of identification. This can be done by using radio waves. Here RTO provide RFID tag for each vehicle during its verification. This RFID tag later used for further vehicle authentication by authorized people. In this proposed system, we use passive RFID tag. Each RFID tag have its own unique ID. During verification, administrator added each vehicle registration number with unique RFID number to the database. This information checked while inspection by authorized people.

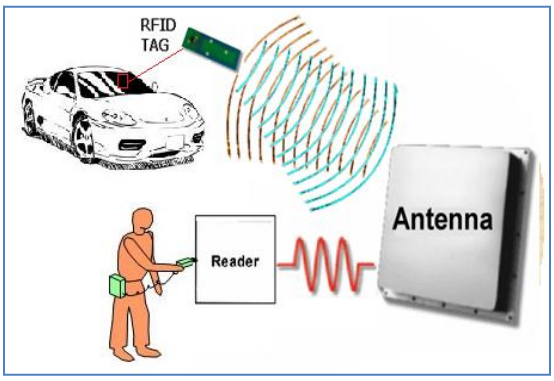


FIGURE 3.3 Vehicle authentication using RFID tag and reader.

iv) SYSTEM OVERVIEW

Our system is E-RTO which consists of admin, users, authorities such as police, insurance agency and pollution agency. Admin is one who controls the system. It can be any of the RTO's. RTO has rights to approve vehicle registration. He add available fancy number to site and also add details of driving license. He can view complaints from users. Also he has power to add authorities like insurance agencies, pollution agencies and police.

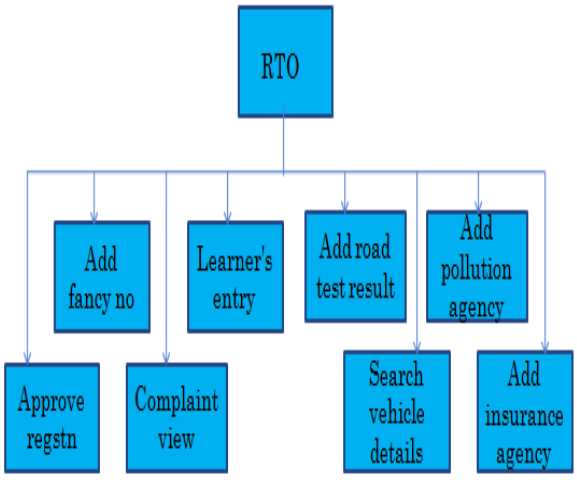


FIGURE 3.41 Functions performed by RTO

First of all, the user needs to register in the site using a username, password and main details. Then he/she can perform a set of functions associated with his vehicle.

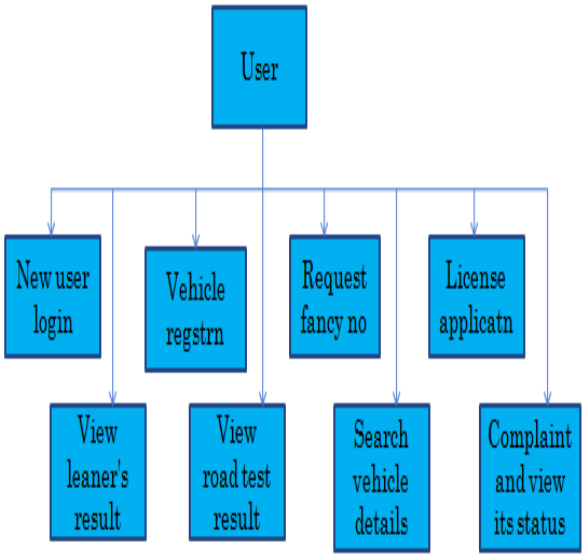
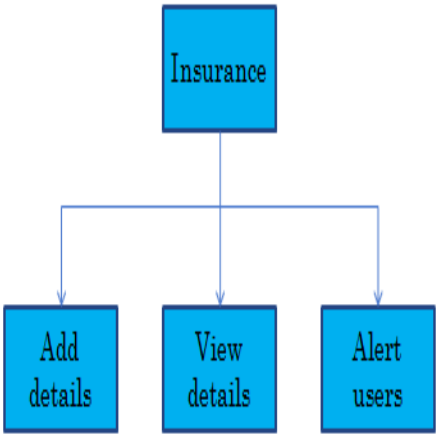
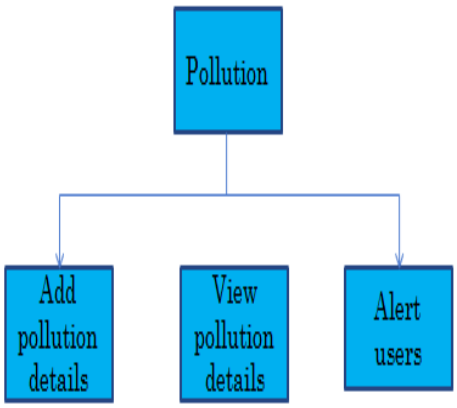


FIGURE 3.42 Functions performed by user

The user can register his vehicle .The registration request will be sent to the corresponding RTO. The admin of the current RTO will approve or reject the registration request. The user can request for fancy number that are provided by admin. User requests for license application, can view leaner's result, view road test result, search vehicle class, complaint and view its status.



(a)



(b)

FIGURE 3.43 Functions performed by (a) insurance agency (b) pollution agency.

Pollution and Insurance agencies can add the corresponding details of vehicles, view vehicle's details and can alert users about the expiry dates.

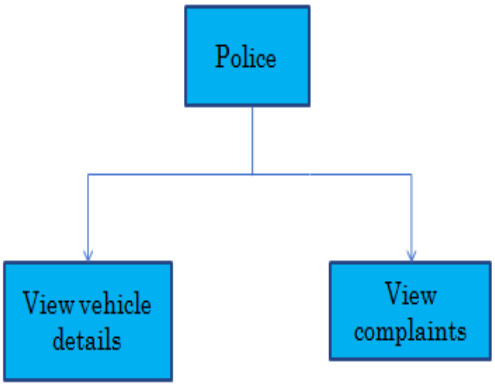


FIGURE 3.44 Functions performed by police

Another authorized authority who can view the vehicle details is police. Police can login to website using login id and password provided by admin. During inspection, RFID tag of the vehicle is scanned and the details is displayed on the screen. All details of the vehicle is displayed ,if any problems regarding details it can be easily identified.

CONCLUSION

E-RTO is a web application. Very useful for completion of RTO works online. Our system helps R.T.O Officers to perform their functions electronically. It will also help the R.T.O officials to maintain records systematically and reduces a lot of paper work and manual efforts. We also identified some general requirements of such a system and tried to meet those requirements as much as possible in the design and implementation of our system. Traffic policeman can easily inspect the vehicle documents using rfid - reader & card. It saves time of user. Also reduce the corruption in transport department and keep the documents safely.

FUTURE SCOPE

In future, as per the user's requirement our whole Program was designed. It provides a better way of document verification for R.T.O officials. Our system is an integration of several systems that in present act as a separate system. It will also reduce a lot of clerical works and provides better accountability. We can also add a provision to track a stolen vehicle in the future systems either through verification or through GPS tracking. This system is also helpful for Traffic police also. The traffic police to be more effective in controlling repeat violators of traffic rules. Therefore enhanced penalties would be imposed for repetition of violation of traffic rules. Fake registration plates, if any, would be detected immediately.

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